

REMARKS

Withdrawal of Finality

In the first Office Action on the merits, i.e., the Office Action of June 3, 2003, the elected claims were rejected as being anticipated in view of seven individual references. Each of these rejections merely stated "The compound of the core structure is anticipated by the reference."

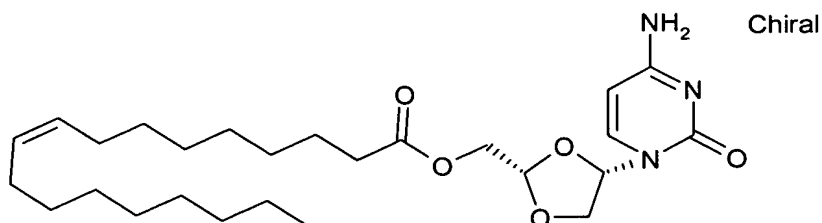
In response to each of these rejections, applicants in the Reply filed November 3, 2003, argued that the rejection did not specifically identify were each of the reference disclosed the allegedly anticipatory compounds. But, in addition, for each of the allegedly anticipatory references, applicants reviewed the specific compounds disclosed by the references and demonstrated that they did not anticipate the claimed invention.

In the Final Rejection presented in the Office Action of January 28, 2004, the Examiner only responded to applicants' first argument, i.e., that the rejections did not specifically identify were each of the reference disclosed the allegedly anticipatory compounds. Specifically, the Examiner argued that the references each "clearly sowed chemical structures which read on the elected core structure." This assertion does not respond to applicants arguments that the individual compounds described by each of the references do not anticipate the claimed invention.

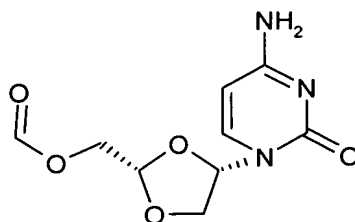
Thus, the Office Action of January 28, 2004 is incomplete. Applicants respectfully request that the finality of the rejections be withdrawn and that the Examiner indicate exactly which specific compounds described in the references allegedly anticipate the claimed invention.

Election/Restriction

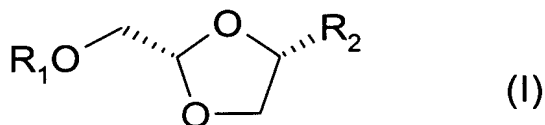
In response to the election of species requirement presented in the Office Action of February 27, 2003, applicants elected compound #21 set forth at page 21, i.e.,



In response to applicants' election, the Examiner has examined what is described as a "core structure." This core structure was defined by the following structural formula:



Compare formula I as presented in applicants' claim 39 when, e.g., R_1 is $-C(O)R_6$, $-C(O)OR_6$ or $-C(O)NHR_6$. Formula I is presented below:



Applicants responded that the scope of what was presently being considered was unclear. Also, applicants requested that the scope of examination be characterized as the compounds of claim 39 wherein R_2 is of the first formula since all of the compounds encompassed thereby exhibit a cytosine base or analogue thereof.

In the Office Action of January 28, 2004, the Examiner stated that the scope of examination was clear because of the structural representation of the core structure. However, the structural presentation did not identify a complete R_1 structure. As for the unspecified portion of the structure, it is not clear whether, for example, all three structures $-R_6$, $-OR_6$ and $-NHR_6$ were examined. Also, it is not clear whether the entire scope of the definition of R_6 was examined. Further, it is noted that that the "core structure" would include compounds that are not within the literal scope of claim 39. See, for example, the proviso clause of claim 39 (it is

noted that in the core structure, R₃ and R₄ would each be H). Applicants again respectfully request clarification as to the examiner subject matter.

In addition, in the Office Action of January 28, 2004, it is asserted that applicants have deleted the elected subject matter, and that applicants are required to reinsert the elected subject matter. This assertion further confuses the issue as to what subject matter is being examined. Claim 39 was amended so that the description of R groups was consistent with the disclosure at page 10, line 19 - page 14, line 13. This amendment did not exclude any of the elected subject matter. Claim 39 was also amended to incorporate the recitation of claim 50 which further defined group R₂. This definition of R₂ encompasses the portion of the "core structure" corresponding to applicants' group R₂. Further, claim 39 was amended to exclude a specific compound, i.e., 1-[2-benzoyloxymethyl-1,3-dioxolan-4-yl]cytosine. This compound does exhibit the "core structure." However, it does not constitute all compounds within the literal scope of original claim 39 that exhibit said core structure. Furthermore, the elected species, compound #21, is still within the literal scope of claim 39. In any event, no authority is cited for the alleged requirement that if an applicant cancels elected subject matter, based on an election of species, the applicant is required to reinsert such subject matter in to the claim.

In view of the above remarks, clarification of the subject matter under consideration is respectfully requested.

Rejection Under 35 USC §102(b)

Claims 39 and 49-61 are rejected as allegedly being anticipated by Belleau et al. (US 5,270,315), Belleau et al. (EP 0 337 713), Cheng et al. (WO 92/18517) or "Chu et al." This rejection is again respectfully traversed.

As noted previously, the rejection refers to "Chu et al.," but does not state which Chu et al. document is being relied on. There are two Chu et al. documents of record, i.e. WO 96/07413 and US 5,817,667. Clarification is again requested.

Again, the rejection simply alleges that the references anticipate the "compound of the core structure." This assertion does not explain how the prior art "describes" a compound of applicants' claim 39 in accordance with 35 USC §102. It is noted that the "core structure"

encompasses compounds that do not fall within the literal scope of applicants' claim 39. Thus, merely asserting that a compound anticipates the "core structure" does not result in a conclusion that claim 39 is allegedly anticipated. In other words, the assertion that the references anticipate the "compound of the core structure" in no way establishes anticipation of applicants' claimed invention.

As discussed previously, the rejection fails to set forth where within the asserted documents there are "described," in accordance with 35 USC §102, embodiments within the scope of applicants' claimed invention. In making an anticipation rejection, an examiner must show **where each and every feature of the claimed invention is described** in the allegedly anticipatory reference. See, e.g., *Ex parte Levy*, 17 USPQ2d 1461, 1462 (BOPA 1990) ["Moreover, it is incumbent upon the Examiner to identify wherein each and every facet of the claimed invention is disclosed in the applied reference. "] The rejection does not satisfy this requirement and should be withdrawn.

In the Office Action of January 28, 2004, it is argued that "since the reference clearly showed chemical structures which read on the elected core structure, it was apparent which structure the examiner was referring to." Applicants respectfully submit that this is not the case. Firstly, many of the structural formulas presented in the prior art references represent generic formulas which encompass vast numbers of compounds and thus do not "describe" a compound of applicants' claimed invention in accordance with 35 USC §102. See, e.g., *In re Ruschig et al.*, 154 USPQ 118 (CCPA 1967). See, e.g., formula L at columns 3-4 of Belleau et al. (US '315). Alternatively, many of the structural formulas represent specific compounds which do not fall within the literal scope of claim 39 and in most cases does not have the asserted "core structure." See, e.g., formulas I-IX and XI-XVIII of Belleau et al. (US '315).

As discussed in the prior Reply, with respect to the specific compounds disclosed in the prior art references, these compounds do not anticipate applicants' claimed invention. The examples in US '315 and EP '713 disclose the following nucleoside analogue compounds: 2-chloromethyl-4-(thymine-1'-yl)-1,3-dioxolane, 2-acetoxymethyl-4-(thymine-1'-yl)-1,3-dioxolane, 2-hydroxymethyl-4-(thymine-1'-yl)-1,3-dioxolane, 2-benzoyloxymethyl-4-(cytosine-1'-yl)-1,3-dioxolane, and trans-2-hydroxymethyl-4-(cytosine-1'-yl)-1,3-dioxolane, 2-benzoyloxymethyl-4-

(adenin-9'-yl)-1,3-dioxolane, 2-hydroxymethyl-4-(adenin-9'-yl)-1,3-dioxolane, 2-benzoyloxymethyl-4-(2'-amino-6'-chloro-(purin-9'-yl)-1,3-dioxolane, cis and trans 2-hydroxymethyl-4-(2'-amino-6'-chloro-(purin-9'-yl)-1,3-dioxolane, cis and trans 2-hydroxymethyl-4-(2'-amino-purin-9'-yl)-1,3-dioxolane, cis and trans 2-hydroxymethyl-4-(2',6'-diamino-purin-9'-yl)-1,3-dioxolane, and 2-hydroxymethyl-4-(guanin-9'-yl)-1,3-dioxolane.

These compounds do not anticipate applicants' claimed invention. See, e.g., the proviso clauses of claim 39. Furthermore, the overall disclosures of US '315 and/or EP '713 do not suggest a compound according to applicants' claimed invention.

WO '517 discloses certain specific compounds and their anti-HBV activity. See, e.g., the compounds disclosed at pages 5-7, page 9, lines 16-21, and page 10, lines 18-22. The compounds described in WO '517 do not anticipate applicants' claimed invention. See, e.g., the proviso clauses of claim 39. Moreover, these compounds do not even exhibit the "core structure." Furthermore, the overall disclosure of WO '517 does not suggest a compound according to applicants' claimed invention.

Chu et al. (US 5,817,667) discloses the use of (-)-OddC, i.e., (-)-(2S,4S)-1-(2-hydroxymethyl-1,3-dioxolane-4-yl)cytosine, and derivatives thereof, for the treatment of cancer. See, e.g., column 4, line 25-column 5, line 34. The specific compounds disclosed by US '667 are (-)-(2S,4S)-1-(2-(benzoyloxy)-1,3-dioxolan-4-yl)cytosine, (+)-(2S,4R)-1-(2-(benzoyloxy)-1,3-dioxolan-4-yl)cytosine, and (-)-(2S,4S)-1-(2-hydroxymethyl-1,3-dioxolane-4-yl)cytosine. See Examples 7-8. The compounds described in US '667 do not anticipate applicants' claimed invention. See, e.g., the proviso clauses of claim 39. Furthermore, the overall disclosure of US '667 does not suggest a compound according to applicants' claimed invention.

Similar to US '667, Chu et al. (WO 96/07413) discloses the use of (-)-OddC, i.e., (-)-(2S,4S)-1-(2-hydroxymethyl-1,3-dioxolane-4-yl)cytosine, and derivatives thereof, for the treatment of tumors. See, e.g., page 5, line 17-27, page 7, lines 1-11, and page 12, lines 8-28. The specific compounds disclosed by WO '413 are (-)-(2S,4S)-1-(2-(benzoyloxy)-1,3-dioxolan-4-yl)cytosine, (+)-(2S,4R)-1-(2-(benzoyloxy)-1,3-dioxolan-4-yl)cytosine, and (-)-(2S,4S)-1-(2-hydroxymethyl-1,3-dioxolane-4-yl)cytosine. See Examples 7-8. The compounds described in WO '413 do not anticipate applicants' claimed invention. See, e.g., the proviso clauses of claim

39. Furthermore, the overall disclosure of WO '413 does not suggest a compound according to applicants' claimed invention.

In view of the above remarks, withdrawal of the rejection is respectfully requested.

Rejection Under 35 USC §102(e)

Claims 39 and 49-61 are rejected as allegedly being anticipated by Belleau et al. (US 6,530,753) and Cimpola et al. (US 6,541,625). This rejection is respectfully traversed.

As noted before, the rejection refers to "Belleau et al. '753" twice. Applicants assume that this is simply a typographical error.

Again, the rejection simply alleges that the references anticipate the "compound of the core structure." This assertion does not explain how the prior art "describes" a compound of applicants' claim 39 in accordance with 35 USC §102. It is noted that the "core structure" encompasses compounds that do not fall within the literal scope of applicants' claim 39. Thus, merely asserting that a compound anticipates the "core structure" does not result in a conclusion that claim 39 is allegedly anticipated. In other words, the assertion that the references anticipate the "compound of the core structure" in no way establishes anticipation of applicants' claimed invention.

As discussed previously, the rejection fails to set forth where within the asserted documents there are "described," in accordance with 35 USC §102, embodiments within the scope of applicants' claimed invention. In making an anticipation rejection, an examiner must show **where each and every feature of the claimed invention is described** in the allegedly anticipatory reference. See, e.g., *Ex parte Levy*, 17 USPQ2d 1461, 1462 (BOPA 1990) ["Moreover, it is incumbent upon the Examiner to identify wherein each and every facet of the claimed invention is disclosed in the applied reference. "] The rejection does not satisfy this requirement and should be withdrawn.

In the Office Action of January 28, 2004, it is argued that "since the reference clearly showed chemical structures which read on the elected core structure, it was apparent which structure the examiner was referring to." Applicants respectfully submit that this is not the case. Firstly, many of the structural formulas presented in the prior art references represent generic

formulas which encompass vast numbers of compounds and thus do not "describe" a compound of applicants' claimed invention in accordance with 35 USC §102. See, e.g., *In re Ruschig et al.*, 154 USPQ 118 (CCPA 1967). See, e.g., formulas I, II, and III at column 4 of Belleau et al. (US '753). Alternatively, many of the structural formulas represent specific compounds which do not fall within the literal scope of claim 39 and in most cases does not have the asserted "core structure." See, e.g., formulas VI-IX and XI-XII in scheme 1 of Belleau et al. (US '753).

As discussed in the prior Reply, with respect to the specific compounds disclosed in the prior art references, these compounds do not anticipate applicants' claimed invention. US '753 discloses a genus of dioxolane and oxathiolane nucleoside compounds, defined by formula I, as having antiviral activity. See, e.g., the text bridging columns 3-4. See also the specific compounds disclosed at column 10, line 50-column 12, line 8, particularly the dioxolane compounds at column 11, line 35-column 12, line 8. See also the compounds disclosed in the reaction schemes and the Examples. The compounds described by US '753 do not anticipate applicants' claimed invention. See, e.g., the proviso clauses of claim 39. Furthermore, the overall disclosure of US '753 does not suggest a compound according to applicants' claimed invention.

In terms of specific dioxolane nucleoside analogues, Cimpola et al. (US '652) discloses in the Examples 15-17, and 23-34 the following compounds: 2-(S)-Benzoyloxymethyl-1,3-dioxolan-4-(S)-yl)-2-oxo-4-aminoacetyl-pyrimidine; 2-(S)-Benzoyloxymethyl-1,3-dioxolan-4-(S)-yl)-2-oxo-4-amino-pyrimidine; 2-(S)-hydroxymethyl-1,3-dioxolan-4-(S)-yl)-2-oxo-4-amino-pyrimidine; 9-(2-(R)-benzoyloxymethyl-1,3-dioxolan-4-yl)-6-chloro-2-amino purine; 9-(2-(R)-benzoyloxymethyl-1,3-dioxolan-4-yl)-6-iodo-2-amino purine; 9-(2-(R)-benzoyloxymethyl-1,3-dioxolan-4-yl)-6-(N-cyclopropyl)amino-2-amino purine; 9-(2-(R)-hydroxymethyl-1,3-dioxolan-4-yl)-6-(N-cyclopropyl)amino-2-amino purine; 9-(2-(R)-hydroxymethyl-1,3-dioxolan-4-yl)-6-(N-2-cyclopropyl-2-aminomethoxy)-2-amino purine; 9-(2-(S)-hydroxymethyl-1,3-dioxolan-4-yl)-2-amino purine; 9-(2-(S) hydroxymethyl-1,3-dioxolan-4-yl)-6-amino purine; 9-(2-(S) hydroxymethyl-1,3-dioxolan-4-yl)-6,2-diamino purine; 9-(2-(S) hydroxymethyl-1,3-dioxolan-4-yl)-6-oxo-2-amino purine; 9-(2-(S) hydroxymethyl-1,3-dioxolan-4-yl)-2-oxo-4-amino-5-methyl pyrimidine; 9-(2-(S) hydroxymethyl-1,3-dioxolan-4-yl)-2-oxo-4-amino-5-fluoro pyrimidine; 9-

(2-(S) hydroxymethyl-1,3-dioxolan-4-yl)-2,4-dioxo pyrimidine; and 9-(2-(S) hydroxymethyl-1,3-dioxolan-4-yl)-2,4-dioxo-5-methyl pyrimidine.

The compounds described by US '625 do not anticipate applicants' claimed invention. See, e.g., the proviso clauses of claim 39. Furthermore, the overall disclosure of US '625 does not suggest a compound according to applicants' claimed invention.

In view of the above remarks, withdrawal of the rejection is respectfully requested.

Rejection Under 35 USC §102(a)

Claims 39 and 49-61 are rejected as allegedly being anticipated by Gourdeau et al. (WO 00/57861). This rejection is respectfully traversed.

The rejection simply alleges that the references anticipate the "compound of the core structure." This assertion does not explain how the prior art "describes" a compound of applicants' claim 39 in accordance with 35 USC §102. It is noted that the "core structure" encompasses compounds that do not fall within the literal scope of applicants' claim 39. Thus, merely asserting that a compound anticipates the "core structure" does not result in a conclusion that claim 39 is allegedly anticipated. In other words, the assertion that the references anticipate the "compound of the core structure" in no way establishes anticipation of applicants' claimed invention.

The rejection fails to set forth where within the asserted documents there are "described," in accordance with 35 USC §102, embodiments within the scope of applicants' claimed invention. In making an anticipation rejection, an examiner must show **where each and every feature of the claimed invention is described** in the allegedly anticipatory reference. See, e.g., *Ex parte Levy*, 17 USPQ2d 1461, 1462 (BOPA 1990) ["Moreover, it is incumbent upon the Examiner to identify wherein each and every facet of the claimed invention is disclosed in the applied reference. "] The rejection does not satisfy this requirement and should be withdrawn.

In the Office Action of January 28, 2004, it is argued that "since the reference clearly showed chemical structures which read on the elected core structure, it was apparent which structure the examiner was referring to." Applicants respectfully submit that this is not the case. The only structural formulas presented in WO '861 represent generic formulas which encompass

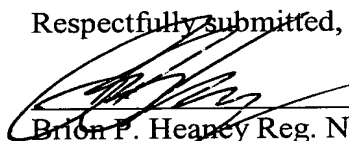
vast numbers of compounds and thus do not "describe" a compound of applicants' claimed invention in accordance with 35 USC §102. See, e.g., *In re Ruschig et al.*, 154 USPQ 118 (CCPA 1967). See, e.g., formula I at page 4, page 6 and page 23 of WO '861.

Furthermore, as discussed in the prior Reply, with respect to the specific compounds disclosed in WO '861, these compounds do not anticipate applicants' claimed invention. WO '861 specifically discloses the compounds β -L-5'-benzyloxy- 2'-deoxy-3'-oxacytidine and β -L-OddC. See compounds #3 and #4 at page 18. These compounds do not anticipate applicants' claimed invention. See, e.g., the proviso clauses of claim 39. Furthermore, the overall disclosure of WO '861 does not suggest a compound according to applicants' claimed invention.

In view of the above remarks, withdrawal of the rejection is respectfully requested.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,



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